ARRANGEMENTS OF MICROSCOPIC PARTICLES FOR PERFORMING LOGIC COMPUTATIONS, AND METHOD OF USE

Abstract

An array of discrete, microscopic particles in a substantially fixed spatial relationship with respect to each other is constructed by using an STM to position CO molecules on the (111) surface of a copper crystal. The particles of the array are arranged so that the array performs a logic operation (such as AND and OR) when input to the array is provided. This input takes the form of moving one or more of the particles, thereby triggering a cascade of motion through the array, which leads to output from the array. More generally, the array may be used to propagate motion by sequentially inducing movement of particles in the array.

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